

swans, and a hybrid duck from Boort. By Master H. B. Coles, Australian parrots, also nest and eggs of reed-warbler from Boort. By Mr. E. M. Cornwall, pair of *Apteryx Australis* from New Zealand, also eggs of Queen Victoria's lyre-bird, *Menura Victorice*. By Rev. A. W. Cresswell, M.A., fossil remains of lower jaw and tibia of very large extinct wallaby from limestone at Coimadia, near Bacchus Marsh. By Mrs. J. V. Flatow, specimens of lizard, *Moloch horridus*, from Port Augusta, S.A. By Mr. C. French, jun., eggs of short-tailed tropic bird. By Mr. J. T. Gillespie, eggs of field calamanthus, *Calamanthus campestris*. By Mr. E. H. Hennell, fossil fruit from Haddon, near Ballarat, found 170 feet below surface. By Mr. G. A. Keartland, pair of bower-birds. By Mr. W. MacGillivray, two abnormally coloured (light blue) eggs of bustard from Flinders River, Queensland. By Baron F. von Mueller, K.C.M.G., plates illustrating "The Acacias of Australia." By Mr. J. E. Prince, several rare natural history works. By Mr. H. Watts, 108 species of marine bryozoa, mounted for the microscope; also a quantity of seaweeds, polyzoa, etc., dredgings at Port Phillip Heads by Mr. J. Bracebridge Wilson. By Mr. S. H. Wintle, F.L.S., fossil casts of Orthoceratites, embracing *Cyrtoceras* and *Cryoceras*, associated with Rynchonella, *Spirifera pleurotomana*, etc., from Orthoceratite bed, Moonee Ponds; also, through the sciopticon, plates of artificially produced *Dendrites*. By Master A. Yelland, fossils from Tasmania, lava from Sumbawa, picked up in Indian Ocean; stones from Fiji, Tasmania, and Ireland.

After the usual *conversazione*, the meeting terminated.

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## NOTES ON A FEW VICTORIAN LICHENS.

BY REV. F. R. M. WILSON, Kew.

(Read before the Field Naturalists' Club of Victoria, 8th Aug., 1887.)

IN the "Fragmenta Phytographiæ Australiensis," Vol. XI., are published 61 varieties of lichens which have been found in Victoria; and in the *Victorian Naturalist* have been published five by Miss F. M. Campbell, and two or three by Mr. F. Reader. Besides these, there are a number of specimens of Victorian lichens in the Melbourne Botanical Museum which have not yet been published. I believe, also, that a good many have been sent to Europe to be named, and that, when they are returned, the list of known Victorian lichens will be much enlarged.

Meanwhile I exhibit specimens of 126 species and varieties, found by myself in different parts of Victoria, additional to those already published. I lay on the table a classified list for publication.

In the naming of these I have received much assistance from Dr. Knight, of New Zealand, a well-known lichenologist. I have also examined Australian and exotic specimens in the Botanical Museum, and I have consulted Nylander's "Synopsis" and the last edition of Leighton's "Lichen Flora," as well as Tuckerman's "Genera Lichenum," which Baron Von Mueller kindly lent me. I have further gratefully to acknowledge assistance in various ways from Miss F. M. Campbell, who is an indefatigable collector of lichens as well as of other plants, and also the kindness of Mr. French in furnishing me with a list of Australian lichens in the Museum, and in furthering my researches among them. I cannot help expressing my sense of the courtesy of all the officials connected with the Botanical Museum.

The specimens exhibited are pretty fairly representative of the various classes of lichens. Some of them, *e.g.*, Calicia, are truly microscopical, being scarcely visible to the unaided and uneducated eye; while of others, *e.g.*, Stictei, one plant will cover more than a square yard of rock; and some, *Usneæ*, will hang from tall trees to the length of 60ft. Some, *e.g.*, of the Collemata, are comparatively short-lived, dying in a few months; while others, such as *Parmeliæ*, attain an unknown age, and are supposed to be hundreds of years old, scarcely altering in size or appearance during a quarter of a century.

A few of the specimens exhibited were gathered from marine rocks under high water mark, others from the summits of lofty mountains, some from the surface of barren rocks, exposed to the full heat of the sun, and others from the trunks of trees in the dense shade of deep, dank gullies. Some lichens I have gathered from well-beaten footpaths, and many from rotten logs; some on mosses, on *jungermannias*, on ferns, on other lichens, on the growing leaves and on the fallen involucre of phanerogamous plants, on the bark of trees and bushes, on rails and dead wood; even on leather, on iron, and on the dried bones of animals. I have collected them from the slate roofs of houses, from the street gutter near my own door in Kew, and from almost every conceivable situation, except the immediate neighbourhood of Melbourne, for, like true children of nature, they are impatient of the smoke and other impurities of city life. Another characteristic of theirs, unfortunately, is that, where a bush fire has ravaged, it is years before any except the hardier and quicker growing kinds are to be found. Many never return. This peculiarity often leads to disappointment in exploring new fields.

It is just three years since I began the study of lichenology. An old friend and fellow-student whom I visited in Scotland recommended me to turn my attention to the lichens of Victoria, which, he said, had not yet been explored. My state

of health requiring me to relax my studies and to spend a good deal of time in the open air, I followed his advice, and have gathered from a good many places in Victoria. Besides Kew, Bulleen, Doncaster, and Box Hill, in my own neighbourhood, I have visited, to the south-east, Brighton, Cheltenham, Mentone, Mordialloc, Oakleigh, Beaconsfield, Warragul, Glenmaggie, Maffra, and Sale; to the east, Ringwood, Croydon, Lilydale, Fernshaw, Black Spur, and Warburton; to the north, Kilmore and Traawool; to the north-west, Gisborne and Macedon; and to the west, Little River, the You Yangs, Birregurra, Lorne, Lismore, Camperdown, Cobden, Terang, and Warrnambool. My collection from these places numbers, I dare say, ten thousand specimens, which I have classified into about a thousand species and varieties, although I have not yet succeeded in naming more than a hundred and fifty. There are certainly many more species and varieties than a thousand in Victoria—probably as many more—and no doubt many of them will be quite new to science. Here is a field for the exercise of youthful energy and scientific enthusiasm.

Nothing can be simpler than the collection and preservation of lichens. A strong knife to cut them from the trees and dead wood, a hammer and mason's chisel to secure saxicole varieties, a few old newspapers in which to wrap the specimens, and a bag to carry them, slung on the back, leaving the hands free for climbing, are sufficient equipment for the field. The only direction needed for a collector is that whatever shows the slightest difference should be considered meanwhile as a variety, and a good number of specimens should be gathered of each, say, a dozen or more. Most lichens can be gathered at any time of the year. The summer, however, is best. A few, which shrink up when dry, are noticed only in wet weather, and it is well to say that the appearance of most lichens is very much altered by moisture. When the specimens are brought home they need merely releasing from their paper bondage, and fastening, with strong glue, to a slip of writing paper, on which the place and time of collecting can be noted, with room for descriptive remarks and drawings of minute details after examination.

The examination and study of this order of plants is a most fascinating one, and gives scope for the exercise of the keenest perception and the most cautious judgment. It is wise to begin with a typical specimen, having all its parts well developed, especially the circumference of the thallus, or body of the lichen, and the apothecia, or fruit; avoiding monstrosities or abnormal forms until the typical plant is known. Examination is made with the lens, with the microscope, and with chemical re-agents—iodine, hydrate of potash, and chloride of lime.

The constituent parts of lichens are few, and the wonder constantly grows as we examine them how such an immense variety can be produced from such simple and scanty materials. The thallus, composed in even the highest forms of only four layers—cortical, gonidial, medullary, and hypothalline—is yet most surprisingly multiform, and the apothecia are wonderfully diversified. The same may be said of the thecæ or spore bags contained in the apothecia. The spores, too, vary in size, shape, colour, and markings beyond all expectation. Many are most beautiful objects under the microscope. Some are almost visible to the naked eye, and others test the powers of the best object glasses of  $\frac{1}{4}$  inch or  $\frac{1}{8}$  inch, being smaller than the ten thousandth part of an inch; and the spermatia are even more minute than the spores, and very various in shape.

If there are any members of the Club who would like to prosecute the special study of this branch of botany, I shall be pleased to show them my collection, and to give them any aid in my power; and I will gladly contribute a paper now and then upon this branch of cryptogamic botany, which deserves to be better known than it is.

#### VICTORIAN LICHENS.

*Exhibited in the Field Naturalists' Club, Melbourne, 8th August, 1887,  
by Rev. F. R. M. Wilson.*

##### COLLEMACEI.

- Lichina confinis*, Ach.  
*Synalissa micrococca*, Bor. & Nyl.  
*Collema furvum*, Ach.  
*Synechoblastus nigrescens*, Huds.  
 (vespertilio, Lgtft.)  
*S. glaucophthalmus*, Nyl.  
*Leptogium phyllocarpum*, var.  
*dædaleum*, Lin.  
*L. Burgesii*, Lgtft.  
*L. sinuatum*, Huds.  
*L. dactylinum*, Tuck.  
*L. tremelloides*, var. *azureum*, Schw.

##### EPICONIODEI.

- Calicium curtum*, Bor.  
*C. trachelinum*, Ach.  
*C. Victoriae*, sp. nov., C. Knight.  
*Sphærophoron Australe*, Laur.

##### CLADODEI.

- Bæomyces fungoides*, Ach.  
*Thysanothecium hyalinum*, Tayl.  
*Pycnothelia papillaria*, Duf.  
*Cladonia cenotea*, Ach.  
*C. crispata*, Ach.  
*C. pungens*, Fl.  
*C. fimbriata*, Hoffm.

- C. fimbriata*, var. *tenella*, Mul. Arg.  
*C. fimbriata*, var. *gracilentata*, Nyl.  
*C. fimbriata*, var. *pulverulenta*,  
 Mul. Arg.  
*C. fimbriata*, var. *adpersa*.  
*C. pyxidata*, var. *marginalis*.  
*C. pyxidata*, var. *chlorophæa*, Fl.  
*C. ochrochlora*, var. *phyllostrata*  
*C. delicata*, var. *subsquamosa*, Nyl.  
*C. pertriosa*, Krpithb.  
*C. fragillima*, Krpithb.  
*C. furcata*, var. *subsquamosa*, J. Mul.  
*C. furcata*, var. *asperata*, J. Mul.  
*C. furcata*, var. *polyphylla*, Fl.  
*C. furcata*, var. *notabilis*, J. Mul.  
*C. furcata*, var. *subulata*, Fl.  
*C. furcata*, var. *recurva*, Fl.  
*C. furcata*, var. *racemosa*, Fl.  
*C. cornucopioides*, var. *pleurota*.  
*C. Floerkiana*, Fr.  
*C. digitata*, var. *macilentata*, Hoffm.  
*Cladina aggregata*, var. *inflata*.  
*C. schizopora*, Nyl.  
*C. pycnoclada*, Nyl.

##### USNEI.

- Usnea barbata*, var. *strigosa*, Ach.  
*U. barbata*, var. *rubiginea*, Ach.

U. barbata, var. microcarpa, *Pers.*  
 U. barbata, var. articulata, *Ach.*  
 U. barbata, var. plicata, *Fr.*  
 U. barbata, var. scabrosa, *J. Mul.*  
 U. dasypogoides, *Nyl.*  
 U. dasypogoides, var. elegans, *Stirt.*  
 U. dasypogoides, var. substrigosa,  
*J. Mul.*

## RAMALODEI.

Ramalina fraxinea, *Lin.*  
 R. fraxinea, var. taniaeformis, *Ach.*  
 R. fraxinea, var. ampliata, *Ach.*  
 R. fastigiata, *Pers.*

## CETRARIEL.

Platysma diffusum, *Web.*  
 P. aleurites, *Ach.*

## HETERODEI.

Heterodea Muellerei, *Nyl.*

## PELTIGEREL.

Nephromium cellulosum, *Ach.*  
 Peltigera pulverulenta, *Tayl.*  
 P. aphthosa, *Lin.*  
 P. canina, *Lin.*  
 P. rufescens, *Hffn.*  
 P. dolichorhiza, *Nyl.*

## PARMELIEL.

Stictina limbata, *Sm.*  
 S. fuliginosa, *Dicks.*  
 S. carpoloma, *Del.*  
 S. crocata, *Lin.*  
 S. gilva, *Thun.*  
 S. fragillima, var. dissimilis, *Nyl.*  
 Sticta physciospora, *Nyl.*  
 S. Freycinetii, var. fulvo-cinerea,  
*Mont.*  
 S. stipitata, sp. nov., *C. Knight.*  
 Parmelia olivacea, *Lin.*  
 P. olivacea, var. proluxa, *Ach.*  
 P. olivacea, var. exasperata, *Ach.*  
 P. conspersa, var. stenophylla, *Ach.*  
 P. conspersa, var. isidiiosa  
 P. australiensis  
 P. australiensis, var. isidiophora  
 P. tenuirima  
 P. tenuirima, var. coralloides  
 P. caperatulata, *Nyl.*  
 P. tiliacea, *Ach.*

P. tiliacea, var. scorteia, *Ach.*  
 P. Borreri, *Tur.*  
 P. olivetorum, *Ach.*  
 P. placorhodioides, *Nyl.*  
 P. molliuscula, *Ach.*  
 P. angustata, *Pers.*  
 P. perforata, var. ciliata, *Nyl.*  
 P. perlata, var. ciliata, *De C.*  
 P. physodes, var. mundata, *Nyl.*  
 P. physodes, var. vittata, *Ach.*  
 P. physodes, var. sublugubris, *Pers.*  
 P. physodes, var. obscurata, *Ach.*  
 P. pertusa, *Schr.*  
 Physcia stellaris, *Lin.*  
 P. stellaris, var. tenella, *Scop.*  
 P. stellaris, var. caesia, *Hffn.*  
 P. adglutinata, *Fl.*  
 P. speciosa, var. hypoleuca, f. caeruleo-  
 nigricans, *Nyl.*

## LECANOREI.

Psoroma sphinctrinum, *Mnt.*  
 Pannaria fulvescens, *Mnt.*  
 P. nigro-cincta, *Mnt.*  
 P. nigra, *Hud.*  
 Squamaria gelida, *Lin.*  
 Placodium vitellinum, *Ach.*  
 Lecanora sarcopsis, var. obscurata,  
*Wahl.*  
 L. atra, *Hud.*  
 L. parella, var. Turneri, *Sm.*  
 Pertussaria communis, *De C.*  
 P. fallax, f. sulphurea, *Schoerer.*  
 Urceolaria scruposa, var. bryophila,  
*Ach.*  
 Thelotrema lepadinum, *Ach.*

## LECIDEINEI.

Cænogonium Linkii.  
 Biatora coarctata, f. terrestris, *Leight.*  
 Patellaria grossa, *Pers.*  
 Lecidea geographica, *Lin.*  
 Psora decipiens, *Ehrh.*

## GRAPHIDEI.

Graphis glaucoderma  
 Arthonia cinnabarina, *Wall.*

## PYRENODEI.

Endocarpon hepaticum, *Ach.*  
 Verrucaria maura, *Wahl.*

CRANES.—Much discussion having taken place as to the nesting of cranes, I would like to mention that they leave Westernport Bay about 16th November, and return in about three months, yet I have never seen a young crane. R. ROBINSON, Hastings.